

# Algebra/Topology Seminar

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## A PRESENTATION FOR THE QUANTUM $K$ -THEORY RING OF PARTIAL FLAG MANIFOLDS

Thursday, September 7, 2023  
3:00 p.m. in BB-B012

ABSTRACT. The quantum  $K$ -theory ring of a smooth projective variety is a deformation of its  $K$ -theory ring of algebraic vector bundles. Gu, Mihalcea, Sharpe, and Zou gave a presentation for the (equivariant) quantum  $K$ -theory ring of the Grassmannian, where the relations are deformations of the classical  $K$ -theoretic Whitney relations. We conjecture a generalization of these quantum  $K$  Whitney relations to all partial flag manifolds. If these relations hold, then they give a complete set of relations. We prove this conjecture for the incidence variety  $\text{Fl}(1, n - 1; n)$ , and for the full flag manifold, we reduce this conjecture to a conjecture of Buch and Mihalcea on Chevalley-type  $K$ -theoretic Gromov–Witten invariants. This is joint with Gu, Mihalcea, Sharpe, Zhang, and Zou.